**Algorithmic Awareness**

Week-long Workshop (Modules 1, 2, and 3)

\*Open Educational Resource Workshop Template for Reuse

**Mon., Wed., Fri. 1:10-3:30 in TBD**

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Office Location: Special Collections 2nd Floor Library

Office Hours: Schedule an appointment via email

***Course Description***

This week-long workshop/course explores how our technological experiences are increasingly mediated by algorithms - the code and computational processes embedded in our software. Recent work by scholars, such as Dr. Safiya Umoja Noble, have shown how algorithms exhibit implicit biases and reify societal prejudices. Moreover, the technical nature of algorithms and the lack of transparency surrounding them can be a challenge for novices. We, and our patrons, routinely engage in systems that predict, recommend, and speculate about our interests based on the digital fingerprint we provide with our link clicks and “likes”, but we all struggle understanding how and why those systems work as they do. In seeking to understand common systems, like the Facebook news feed or the Google search engine results page, we will discover the scope and reach of algorithms. We are looking for ways to address a gap in our field: a lack of an understanding of the rules that govern our software and shape our digital experiences. Throughout this workshop/course, we will explore some of the possibilities around a new competency termed “Algorithmic Awareness”.

***Course Goals***

Trainers who complete this course successfully will be able to:

* Describe, define, and teach the term *algorithm*
* Contextualize and teach basic mathematical formulas and codes within algorithms
* Explain and contextualize the foundational concepts such as the Binary Search Tree algorithm and Dijkstra's algorithm.
* Consider and describe a variety of systems that utilize algorithms and the resulting effects within that system
* Discuss the implications of gender and racial diversity within algorithmic systems
* Describe the ethical ramifications of current and future algorithmic programs
* Explain the importance of algorithmic awareness
* Identify how algorithms have authority
* Utilize the provided teaching deliverables and feel confident they could prepare their own unique course regarding algorithmic awareness

***Reading List***

Books

José Van Dijck, *The Culture of Connectivity: A Critical History of Social Media*

*Cathy O'Neil, Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*

*Frank Pasquale, The Black Box Society: The Secret Algorithms That Control Money and Information*

Articles

Bogost, Ian, "The Cathedral of Computation", The Atlantic <https://www.theatlantic.com/technology/archive/2015/01/the-cathedral-of-computation/384300/>

Clark, Jason A. "Anticipatory Design: Improving Search UX using Query Analysis and Machine Cues." [http://dx.doi.org/10.3998/weave.12535642.0001.402](http://dx.doi.org/10.3998/weave.12535642.0001.402.)

Diakopoulos, Nicholas, “Algorithmic Accountability: On the Investigation of Black Boxes” <https://towcenter.org/research/algorithmic-accountability-on-the-investigation-of-black-boxes-2/>

Ekström, Andreas. “The Moral Bias Behind Your Search Results.” [www.ted.com/talks/andreas\_ekstrom\_the\_moral\_bias\_behind\_your\_search\_results](http://www.ted.com/talks/andreas_ekstrom_the_moral_bias_behind_your_search_results).

Haynes, Marie. “Your Google Algorithm Cheat Sheet: Panda, Penguin, and Hummingbird” <https://moz.com/blog/google-algorithm-cheat-sheet-panda-penguin-hummingbird>

Hillis, Ken, Michael Petit, and Kylie Jarrett, [“What Is in PageRank? A Historical and Conceptual Investigation of a Recursive Status Index”](http://computationalculture.net/article/what_is_in_pagerank) <http://computationalculture.net/what_is_in_pagerank/>

\*Noble, Safiya Umoja. “Missed Connections: What Search Engines Say About Women.” safiyaunoble.files.wordpress.com/2012/03/54\_search\_engines.pdf.

O'Neil, Cathy. "Do Algorithms Perpetuate Human Bias?" <https://www.npr.org/2018/01/26/580617998/cathy-oneil-do-algorithms-perpetuate-human-bias>

Pariser, Eli. "The Filter Bubble." <https://www.youtube.com/watch?v=B8ofWFx525s>

Reidsma, Matthew. “Algorithmic Bias in Library Discovery Systems.” <https://matthew.reidsrow.com/articles/173>

Seaver, Nick, “Knowing Algorithms” <https://static1.squarespace.com/static/55eb004ee4b0518639d59d9b/t/55ece1bfe4b030b2e8302e1e/1441587647177/seaverMiT8.pdf>

Slavin, Kevin. "How Algorithms Shape Our World." <https://www.ted.com/talks/kevin_slavin_how_algorithms_shape_our_world>

Striphas, Ted, “What is an Algorithm?” <http://culturedigitally.org/2012/02/what-is-an-algorithm/>

***Expectations***

In this intensive week-long workshop, it is critical that you attend all sessions, arrive ready to participate actively, and commit to high-quality work and communication.

***Daily Work/Homework***

Each class will begin with 30 to 45 minutes of content followed by seminar-style discussion and an activity. All readings must be completed before the beginning of each class in addition to a 3-2-1. Each 3-2-1 will contain three things you learned from the material, two questions you had, and one thing you will never forget. The format is flexible but should be NO MORE THAN one page. These will be turned in at the end of class and count for 10% of your final grade.

***Class Participation***

Attendance and participation are required to succeed in this course. You are expected to be an active listener, ask insightful questions, and contribute meaningful thoughts during class discussions. All participants will conduct themselves respectfully while creating an inclusive learning environment for all students.

***Major Assignments: Descriptions***

The goal of this course is to “train the trainer” leaving you with all the tools you need to feel confident to research and teach this yourself. At the end of the final class, you will submit a copy of your draft teaching plan. There will be time in class to work on this as well. This does not have to be a fully developed plan or polished piece, but it should establish a viable teaching opportunity and should make sense to someone who was not in this class.

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| Date | Topic/Assigned Readings/Homework | Class Activity |
| Monday | Module One: Building Competencies Around Algorithmic Awareness    Required Reading: Seaver, Dijck, Haynes  Optional Reading: Pariser, Pasquale, Rieder | Programming the Library |
| Wednesday | Module Two: Profiles, Transparency, Personalization, and Algorithms    Required Reading: Noble, Ekstrom, O’Neil (TED talk)  Optional Reading: Reidsma, Slavin, O’Neil (book) | Anonymous and Personal Profiles |
| Friday | Module Three: Promising Directions    Required Reading: Clark, Bogost  Optional Reading: Diakopoulos | Sprinting Exercise |